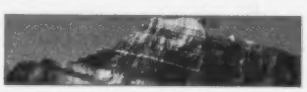
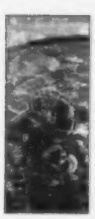
Coal and Mineral Development in Alberta
2013 Year in Review

Coal mining and projects
Metallic and industrial mineral activity
Land-use planning
Industrial mineral and coal production and royalty
Mineral assessment reports





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Contents

Introduction 3
Metallic and industrial minerals 3
2013 metallic and industrial mineral exploration highlights 4
2013 industrial mineral quarry activities 8
Coal 9
2013 coal exploration highlights 9
2013 coal mine activities 11
In Situ Coal Gasification (ISCG) 14
CMD Updates 15
Activities 15
Mineral Assessment Reports 15
Interactive maps 15
Legislation 15
Alberta Energy Regulator 15
Coal Policy 16
New publications 16
Alberta Geological Survey 16
Land-use planning 16
Land-use Framework 16
Energy and Mines Ministers' Conference 18
About Alberta's regulatory system 19

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Cover photo
Panoramic: Grande Cache coal mine, Grande Cache, Alberta. Courtesy: T. Hauk

Introduction

The coal sector was very active in 2013, with a number of sales of both operating mines and exploration assets by long-term coal players to new entrants to the Alberta coal market. This is in addition to exploration started on new and historical coal exploration targets. The main interest, from a new development perspective, is in the metallurgical coal potential. Exploration targets were not the only news in the coal sector: two potential new mines made significant advancements towards starting in 2013. Construction on one or both of the projects could begin in 2014.

In conjunction with the rekindled interest in Alberta's coal, the province's regional planning through the Land-use Framework continued with implementation of the Lower Athabasca Regional Plan and development of the draft South Saskatchewan Regional Plan.

Limited work was reported in the metallic and industrial mineral sector; however, two advanced projects reported work.

Metallic and industrial minerals

The total area covered by metallic and industrial minerals permits decreased slightly from the previous year, along with the total number of permits (Figure 1). This is a continuation of a downward trend in the total number of metallic and industrial minerals permits over the past 5 years. This, in part, is most likely the result of a reduction of exploration activity by junior mining companies that have been suffering the effects of low metal prices and tight financial markets. The total number of metallic and industrial minerals leases in Alberta remained approximately the same in 2013 (Figure 2).

Metallic and Industrial Minerals Permits

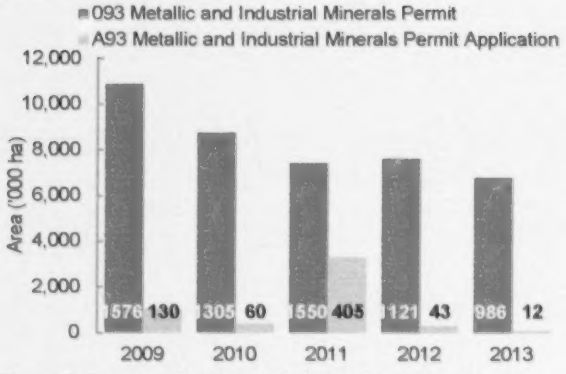

Figure 1. A bar graph with the total area of metallic and industrial minerals permits and permit applications from 2009 through 2013 (the report period is October 1 through September 31). Numbers at the base of the bars indicate the number of individual permits or applications.

Metallic and Industrial Minerals Leases

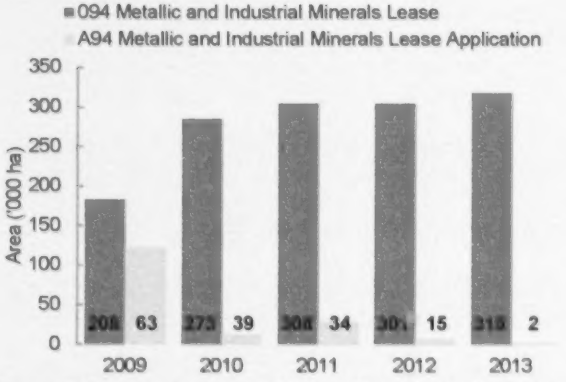

Figure 2. A bar graph with the total area of metallic and industrial minerals leases and lease applications from 2009 through 2013 (the report period is October 1 through September 31). Numbers at the base of the bars indicate the number of individual leases or applications.

As seen in the previous few years, the number of metallic and industrial minerals licences continued to rise in 2013, with a 50% increase from 2012 (Figure 3).

Assessment report filings in 2013 were approximately $5 million, which are significantly lower than the $15 million in 2012 (keeping in mind 2012 saw a spike from the five-year average; Figure 4). The assessment expenditures reported have up to a two year lag from the work done because assessment reports are required on a two year cycle.

See Figure 6 for a map of tenure activity at the end of 2013.

2013 metallic and industrial mineral exploration highlights

Polymetallic Shale

DNI Metals Inc (*www.dnimetals.com*) announced the analytical results from their 2012 drilling program in January 2013; the drilling was on the Buckton and Buckton South deposits on their **SBH property** in northeast Alberta. In addition, a new mineral resources estimate was released in August 2013 for the Buckton deposit. The estimate was for a suite of metals, including nickel (Ni), cobalt (Co), zinc (Zn), copper (Cu), uranium (U) [1], rare earth elements (REE), and yttrium (Y).

Using the estimates provided in the mineral resource assessment, DNI completed a Preliminary Economic Assessment (PEA) for the Buckton deposit. The PEA outlined a conceptual mine plan, which featured significant potential for U and REE production from the deposit, with achievable annual productions of 450 tonnes of uranium yellowcake and 5,500 tonnes of REE-oxides.

Iron

Ironstone Resources Ltd (*www.ironstoneresources.com*) made significant progress on its **Clear Hills project**, located approximately 80 kilometres northwest of Peace River in northwest Alberta (Figure 5 and 6). The company's focus has shifted from exploration and deposit delineation

Metallic and Industrial Minerals Licences

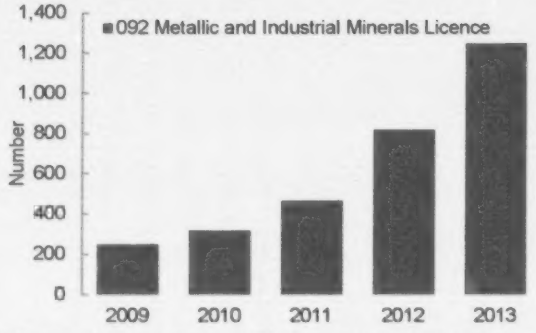

Figure 3. A bar graph with the total number of active metallic and industrial minerals licences from 2008 through 2012 (the report period is October 1 through September 31).

Assessment Report Expenditures

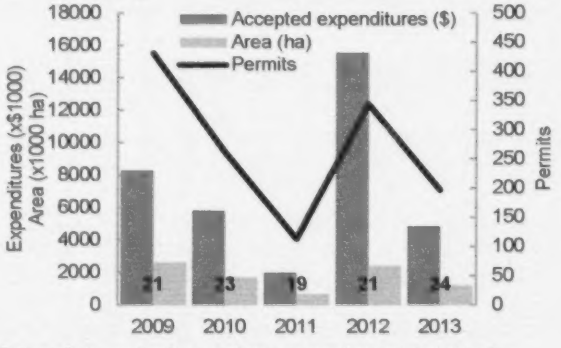

Figure 4. A graph of mineral assessment report statistics for 2009 through 2013. The number of permits and area are those reported in submitted reports. The accepted expenditures are those accepted by Alberta Energy; the total amount claimed is not reported, but is higher than the accepted expenditure value. Accepted values for 2013 are preliminary because not all report reviews were completed at the time of publication.

[1] In Canada, mining is usually governed by provincial regulations. Uranium production, however, is under federal jurisdiction. Canada's independent nuclear regulator, the Canadian Nuclear Safety Commission, regulates uranium mines and mills and all subsequent stages of the nuclear-fuel cycle, such as refining, conversion and fuel fabrication, to protect health, safety, security and the environment.

How is steel produced?

There are two main ways that steel is produced:

1) integrated smelting using a blast furnace followed by a basic oxygen furnace, and
2) the electric arc furnace.

The blast furnace method is the most common, producing about 70% of the world's steel. Metallic iron is produced by feeding iron ore, coke (from metallurgical coal), and a flux (e.g. limestone) into the furnace. This produces metallic iron, which can be used to make steel.

The electric arc furnace uses primarily scrap steel as the main feedstock. An electric arc between two electrodes provides heat that melts the scrap. Direct reduced iron (DRI) can be used as an alternative feedstock for this process.

Metallurgical coal from the **Cardinal River** and **Grande Cache** mines in Alberta is exported for use in blast furnaces.

The DRI briquettes that **Ironstone Resources** intends to produce would be used as a feedstock for electric arc furnaces.

Figure 5. A photograph of Ironstone Resources' bulk sample pit at their Clear Hills property. The photo is courtesy of Ironstone Resources Ltd.

to metallurgical and process testing. From testing during 2012-2013, Ironstone reported high metallization of iron in reduction kilns, a reduction in phosphorus levels, a decreased temperature requirement for reduction, and vanadium pentaoxide (V_2O_5) in the process tails.

Ironstone is planning more work over the next year to advance their project toward commercialization. A preliminary economic assessment is planned for the first quarter of 2014, followed by a commercial scale-up of their pilot project in quarter two. In the fourth quarter of 2014, they are planning to complete the process flow-sheet for the reduction process. By the fourth quarter of 2015, Ironstone anticipates completion of a demonstration pilot plant and a pre-feasibility study on the project.

Whereas typical iron mines produce a 63% iron ore as their final product, Ironstone is developing their process to produce metallic iron briquettes, which will be in the order of 90% iron. They are marketing the briquettes as a substitute for scrap iron in electric arc furnaces for steel production. Ironstone is also developing a method to recover vanadium as part of the process.

Ironstone's Clear Hills project is an oolitic ironstone deposit hosted in the Bad Heart formation. The most recent resource figures are published in their July 2012 NI 43-101 technical report. Ironstone reports 652 Mt Indicated and Inferred resources at 33% iron, and a 557 Mt Indicated resource at 0.20% V_2O_5.

Uranium

Declan Resources Inc (*www.declanresources.com*) announced, in October 2013, that they have reached an option agreement with 877384 Alberta Ltd for the **Firebag River Uranium property**. The agreement includes a $3 million work commitment by Declan. The property is located 30 km southwest of the Athabasca Basin. Limited exploration on the property was completed by E&B Explorations Ltd in 1977.

For additional information regarding metallic and industrial permits and properties that did not report active exploration in 2013, go to Alberta Energy's online interactive map: *www.energy.alberta.ca/OurBusiness/1072.asp*.

Other commodities

Alberta remains prospective for various other metallic and industrial minerals, despite no

continued on page 8

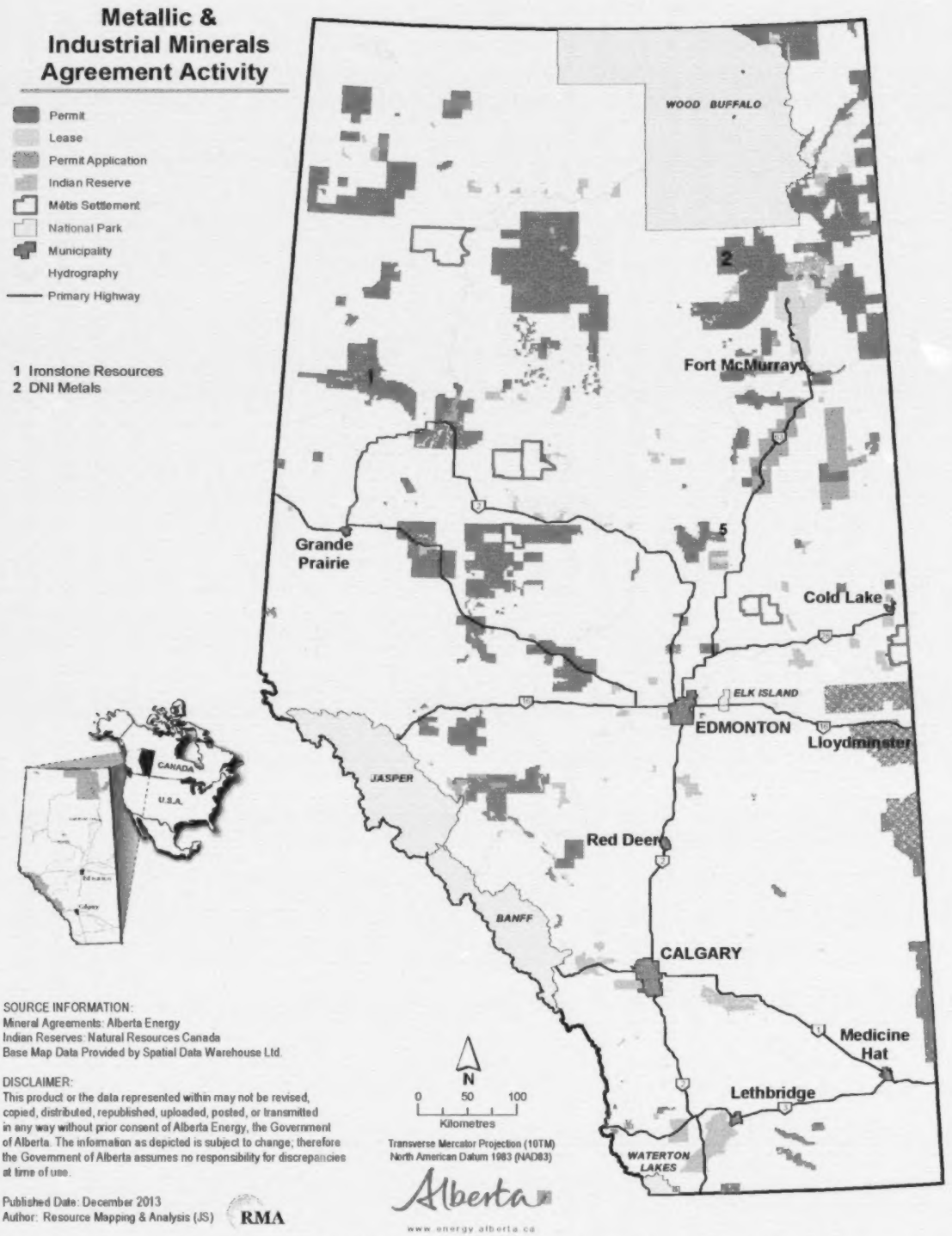

Figure 6. A map of Alberta showing metallic and industrial mineral tenure activity as of December, 2013. An interactive, real-time version of this map is available at www.energy.alberta.ca/OurBusiness/1072.asp

Quarriable Mineral Production

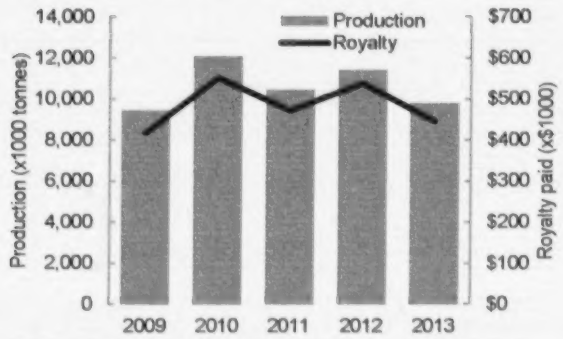

Figure 7. The total quarriable mineral production and royalty collected for the last five years, including 2013. The report period is from October 1 to September 31.

Salt Production

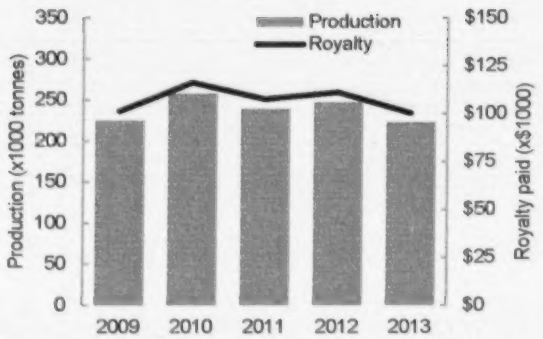

Figure 8. The total salt production and royalty collected for the last five years, including 2013 The report period is from October 1 to September 31.

Industrial Mineral Quarries

Mine/Quarry	Commodity	Location	Operator
Calling Lake*	Salt	North of Athabasca	Calcium Inc.
Clearwater	Limestone	Rocky Mountain House	Burnco Rock Products Ltd.
Cougar Ridge	Limestone	Rocky Mountain House	Prairie Creek Quarries Ltd.
Exshaw	Limestone	Exshaw	Lafarge Canada Ltd.
Fish Creek	Limestone	Nordegg	Graymont Western Canada Inc.
Fort Hills	Limestone	North of Fort McMurray	Hammerstone Corporation
Fort McMurray West	Limestone	Fort McMurray	Suncor Energy Inc.
Gap	Limestone	Exshaw	Graymont Western Canada Inc.
McLeod	Limestone	Cadomin	Lehigh Hanson Materials Ltd.
Mitsue*	Salt	Slave Lake	Tiger Calcium Services Inc.
Muskeg	Limestone	North of Ft McMurray	Hammerstone Corporation
Peace River Silica	Silica Sand	Peace River	Contractors Leasing Corp.
Riverview*	Salt	Riverview	The Canadian Salt Company Ltd.
Rundle Stone	Dolomitic Siltstone	Canmore	Kamenka Quarries Ltd.
Seebe	Shale	Kananaskis	Lafarge Canada Ltd.
Sprayfalls	Sandstone	Exshaw	Thunderstone Quarries Ltd.
Steepbank	Limestone	North of Fort McMurray	Hammerstone Corporation
Summit Lake	Limestone	Coleman	Graymont Western Canada Inc.
Sunnynook*	Salt	Drumheller	Jarodon Resources Ltd.
Vicory	Sandstone	Coleman	Pat Dwyer Construction Inc.
Yamnuska	Sandstone	Kananaskis	Lafarge Canada Ltd.

Table 1. A table of the active industrial mineral quarries in Alberta; there are no metallic mines. *Salt is produced through in situ leaching from the Elk Point group.

publicly reported exploration over the past year. This includes base metals in northwest Alberta, diamonds in the Buffalo Head Hills area, lithium in groundwater near Fox Creek and Valleyview, and potash along the southern portion of the Alberta-Saskatchewan border.

Titanium Corporation (*www.titaniumcorporation.com*) continued with their process development for extracting heavy minerals and residual bitumen from oil sands tailings. Titanium's plan is to integrate their technology into the current oil sands processing circuits and process the tailings before they are sent to settling ponds. The company suggests that the oil sands contain almost 1% heavy minerals, which are concentrated to 25% in the sand fraction during the primary bitumen recovery process [2].

2013 industrial mineral quarry activities

Production and royalty. The royalty rates for quarriable minerals, salt and placer gold are all production-based. The metallic mineral royalty is revenue-based but there is currently no production of metallic minerals.

The production of both quarriable minerals (including limestone, dolomitic siltstone, sandstone, and silica sand) and salt are slightly down from 2012 (Figure 7 and 8). It is, however, within the relatively flat five-year trend. The most significant quarriable mineral production each year is limestone. Salt production is completely from in situ leach operations that remove salt from the Devonian Elk Point group.

Table 1 lists all operating industrial mineral quarries in Alberta.

Limestone

Parsons Creek Aggregates (*www.parsonscreekresources.com*) continued through the review process for their limestone quarry project (Figure 6). In January 2013 they submitted a Supplementary Request Responses #4 document to the Natural Resources Conservation Board (NRCB; *www.nrcb.ca*) and held an open house in Fort McMurray. The NRCB considered the Parsons Creek application complete, and Alberta Environment and Sustainable Resource Development (ESRD) considered their Environmental Impact Assessment complete, on January 16, 2013. A pre-hearing meeting was held in Fort McMurray in August 2013 to discuss potential issues that may arise during a public hearing of the project. A report from that meeting was released by the NRCB on September 6, 2013. At the time of publication a hearing date was not set.

The Parsons Creek Aggregate project is located between highway 63 and the Athabasca River, immediately north of Fort McMurray. The company plans to quarry 58 Mt of limestone over a 40 year mine life.

What is limestone used for in Alberta?

Limestone is made of the mineral calcite, which is calcium carbonate ($CaCO_3$). It is an important industrial mineral commodity throughout the world. Because limestone is inexpensive and heavy, it is not economic to transport it over distance; it is important that there is a local supply.

Without any processing, limestone is used as a building stone, for landscaping, or it is crushed for use as an aggregate for road construction. Limestone from the **Muskeg Quarry** is used for building mine haul roads and well pads in the oil sands area. The **Parson's Creek Aggregate** project also proposes to produce limestone for use as a reagent to remove sulphur in bitumen upgrader operations, or for water purification at in situ oil sands projects.

Graymont and **Lafarge** plants near Exshaw produce refined products, such as quick lime (calcium oxide; CaO) which is a key ingredient in the production of cement.

[2] Zircon from a unique source. Mineral Sands Report, issue 197, March 2012, pages 11-15.

Coal

The total area and number of coal leases and coal lease applications in the province remained constant from 2012 to 2013 (Figure 9). Whereas interest in 2012 was focused on acquiring new coal rights, 2013 saw companies focused more on commencing exploration programs and doing other work on their properties.

See Figure 11 for a map of Alberta's coal fields, coal ranks, mines, and projects.

2013 coal exploration highlights

In Fall 2013, **Altitude Resources Ltd** (*www.altituderesources.ca*) signed an exploration and option agreement with **Elan Coal Ltd** (*www.elancoal.com*) that can earn Altitude up to a 51% interest on 22,000 hectares of coal rights that Elan holds in coal lease applications. The lease applications are located in the Eastern Slopes north of the Crowsnest Pass area in southwest Alberta; they extend for approximately 55 kilometres along strike of the Kootenay group.

The **Elan property** includes five different areas with historical work, dating back to the 1940s, by various companies, including Consol Energy, Devon Canada, Granby Mining, CanPac Minerals, and Canadian Hunter. Current exploration is targeting multiple coal seams of low-mid volatile bituminous coal. Altitude is planning to complete an NI 43-101 compliant resource calculation in 2014.

From August to September 2013, Altitude drilled 30 holes on their **Palisades property**, which is located north of Highway 16 near Hinton. The 4,583 metres of drilling included 27 rotary and 3 core holes. Coal analysis on the collected samples was underway at the time of publication. A 2011 NI 43-101 technical report on the property identified a 140 million tonne exploration target. Coal quality is low to medium volatile with variable but generally moderate ash content, with good washability and coking coal properties. Historical work was completed as the Hoff property by Rio Tinto, in 1969, and Denison Mines during 1982-83.

Black Eagle Mining Corporation (*www.blackeaglemining.com*) completed the drilling of 48 exploration drill holes in 2012, on its Blackstone metallurgical coal project (Figure 11). NI 43-101 Measured and Indicated Resources of 176 Mt of

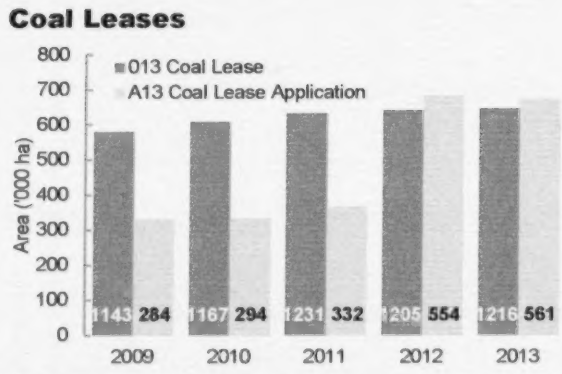

Figure 9. A bar graph with the total area of coal leases and lease applications from 2009 through 2013 (The report period is October 1 through September 31). Numbers at the base of the bars indicate the number of individual leases or applications.

Figure 10 . Coal core from Riversdale Resources' Grassy Mountain project. The photo is courtesy of Riversdale Resources.

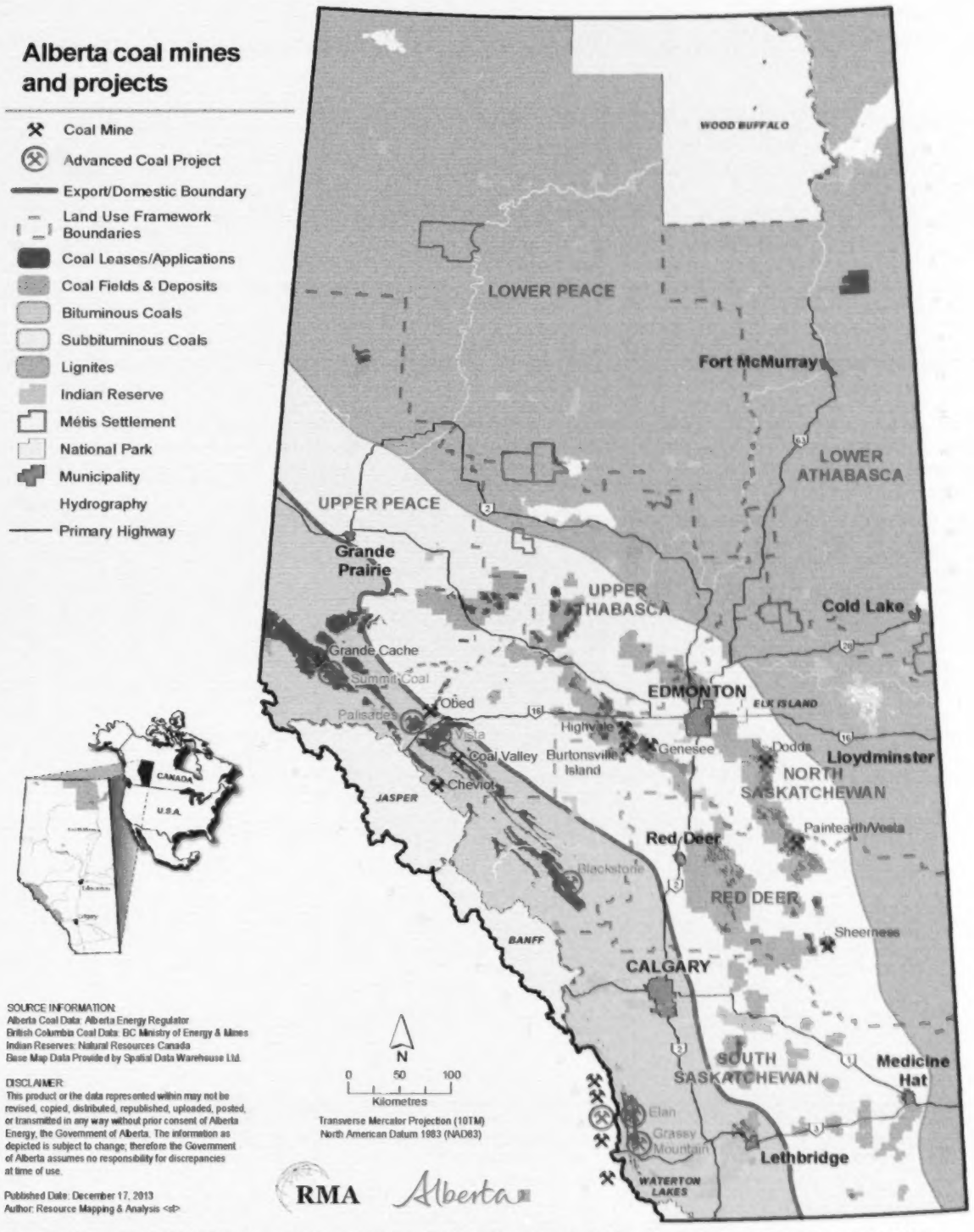

Figure 11. A map of Alberta showing coal tenure activity (dark brown), and coal mines and projects, as of December, 2013. Coal fields (light brown) and approximate coal rank distribution (coloured bands) are also shown. An interactive, real-time version of the coal tenure on this map is available at www.energy.alberta.ca/OurBusiness/1072.asp.

high quality mid-volatile metallurgical coal were reported from this drilling with a total Resource of 275 Mt. A preliminary economic assessment is currently underway and further exploration and feasibility study is planned for mid-2014.

Riversdale Resources entered the Alberta coal market in 2013 with the purchase of coal assets in the Crowsnest Pass from Consol Energy and Devon Canada. The sale was for Crown leases and freehold rights for coal, for $24 million and $23 million respectively. The main asset of the sale is the **Grassy Mountain property** from Consol, which is located immediately north of Blairmore (Figure 11), and also includes three additional exploration projects: Bellvue, Adanac, and Lynx.

The Grassy Mountain property is a historic metallurgical bituminous coal project. There are existing mine workings from the production of 3.5 million tonnes of coal between 1947 and 1960. Consol Energy drilled 391 exploration holes on the property between 1973 and 1975, and collected a 54,000 tonne bulk sample. The last historical work was a feasibility study in 1982 that suggested annual production of 2 million tonnes over a 28 year mine life.

Riversdale completed a pre-feasibility study and environmental audit in 2013, and have begun the initial steps to commence an environmental impact assessment. They have engaged a consultant to begin work on a feasibility study, and have commenced drilling on the property (Figure 10). Riversdale reports both resources and reserves for the property:

Resources	
Measured	38.5 million tonnes
Indicated	101.8 million tonnes
Inferred	51.7 million tonnes
Reserves	
Proven	19.8 million tonnes
Probable	72.2 million tonnes

Other Alberta assets sold by Consol Energy were purchased by **Ram Coal** (*www.ramcoal.com*). The $55 million sale was for coal lease applications in the Rocky Mountain Foothills. The **Ram** and **Scurry Ram properties** are located south of Nordegg. Ram Coal reports a NI 43-101 compliant Measured and Inferred resource of 359.0 Mt, and Inferred resource of 84.8 Mt of medium- to high-volatile metallurgical bituminous coal.

There are 501 historical drill holes on the properties since 1970. Ram Coal has planned 66 new holes in 2013 and 2014, using rotary and core drills. They planned environmental and engineering work for the end of the third quarter of 2013, and a feasibility study in 2014.

2013 coal mine activities

On December 24, 2013 **Sherritt International Corporation** (*www.sherritt.com*) announced the sale of coal assets for $946 million. Colorado-based **Westmoreland Coal Company** (*www.westmoreland.com*) will buy Sherritt's Prairie and Mountain operations in Western Canada for $465 million and **Altius Minerals** (*www.altiusmineral.com*) of St. John's, NL, will buy Sherritt's entire coal and potash royalty portfolio and coal developments for $481 million.

Sherritt's mountain operations in Alberta include the active Coal Valley mine and the suspended Obed Mountain mine. Production from Sherritt's mountain operations in 2012 totalled approximately 3.5 Mt.

Sherritt's Prairie Operations in Alberta include four subbituminous (mine-mouth) coal mines: Highvale, Paintearth, Sheerness, and Genesee. These mining operations supply electricity generators with coal under secure long-term contracts. Production in 2012 from Sherritt's mine-mouth operations was approximately 21.6 Mt.

Production and Royalty. Bituminous coal production has remained constant over the last three years. Because of lower net revenues reported by producers, royalty payable has decreased over the same period (Figure 12). The total subbituminous coal production has remained about the same in 2013 as the previous four years (Figure 13). The proportion of production from Crown-owned coal is higher over the last three years, which has resulted in an elevated amount of royalty collected relative to 2009 and 2010.

Table 2 lists all operating coal mines in Alberta.

Summit Coal

In August 2013, **Maxim Power Corp** (*www.maximpowercorp.com*) received final approvals from the Alberta Energy Regulator (AER) to begin construction on their **Summit Coal Mine project** (Summit Coal) at Grande Cache (Figure 11). The

Bituminous Coal Production

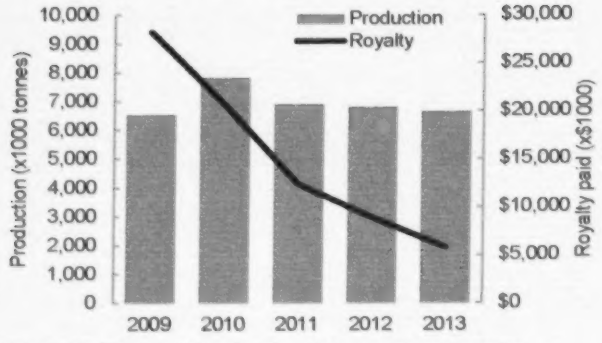

Figure 12 . The total bituminous coal production and royalty collected for the last five years, including 2013. The report period is from October 1 to September 31.

Subbituminous Coal Production

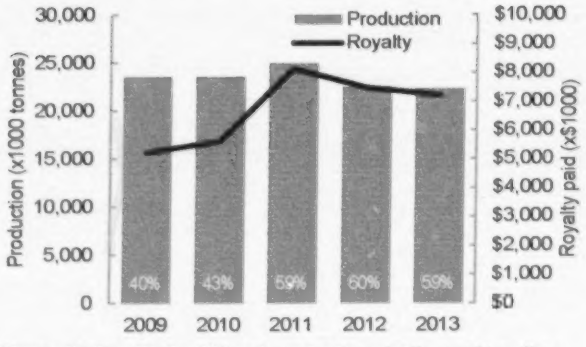

Figure 13. The total subbituminous coal production and royalty collected for the last five years, including. The percentages are the portion of the production from Crown coal rights. Alberta Energy does not collect royalty is on freehold coal production. The report period is from October 1 to September 31.

Coal Mines

Mine	Coal rank	Location	Owner/Operator	Main use
Burtonsville	Subbituminous	Burtonsville	Keephills Aggregate Company Inc.	Small-scale sales
Cheviot (Cardinal River)	Bituminous	Hinton	Teck Coal Ltd.	Export: metallurgical
Coal Valley	Bituminous	Hinton	Coal Valley Resources Ltd.	Export: thermal
Dodds	Subbituminous	Ryley	Dodd's Coal Mining Company Ltd.	Small-scale sales
Genesee	Subbituminous	Warburg	Capital Power LP / Prairie Mines and Royalty Ltd.	Electricity: Genesee generating stations
Grande Cache	Bituminous	Grande Cache	Grand Cache Coal Corp.	Export: metallurgical
Highvale	Subbituminous	Wabamun	Transalta Corp. / SunHills Mining LP	Electricity: Keephills and Sundance generating stations
Paintearth/ Vesta	Subbituminous	Forestburg	Prarie Mines and Royalty Ltd.	Electricity: Battle River generating stations
Sheerness	Subbituminous	Hanna	Prairie Mines and Royalty Ltd.	Electricity: Sheerness generating stations

Table 2. A table of the active coal mines in Alberta.

How do I get application information from the AER?

All applications and supporting information are required to be put on the public record. To view an application, contact

AER Information Product Services
Suite 1000, 250-5 St SW
Calgary, AB T2P 0R4
phone. 1-855-297-8311
e-mail. infoservices@aer.ca

Alberta Government Library
Great West Life Building
6th Floor, 9920-108 St NW
Edmonton, AB T5K 2M4
phone. 780-427-5828

approvals include a new licence for a beneficiation plant and an amendment to their existing Mine 14 mine licence that increases the maximum annual production from 0.48 Mt to 1.3 Mt. Summit Coal is being developed through the Summit Coal Limited Partnership.

The beneficiation plant will be located on Milner Power's existing industrial complex, and, each year, will produce 950,000 tonnes of low- to mid-volatile bituminous metallurgical coal for export. The 350,000 tonnes of waste coal will be used as a mine mouth feedstock to the HR Milner power station on the complex.

Maxim issued an updated NI 43-101 technical report in May 2013, which reported a 119.3 Mt Measured and Indicated Resource, a 154.0 Mt Inferred Resource, and a 18.7 million tonne Proven and Probable Reserve. Current reserves and proposed annual production give a 15 year mine life for the project.

The latest timelines from Maxim have mine equipment being delivered in 2014 and coal production beginning at the start of 2015. They have secured port space at Ridley Terminals in Prince Rupert. In August 2013, Maxim announced the sale of US assets, in order to help finance construction of the Summit coal mine.

Vista

Coalspur Mines Limited (*www.coalspur.com*) is in the final stages of the Alberta Energy Regulator's (AER) regulatory review of their **Vista coal mine project**.

Public hearings were scheduled to hear opposition to the project from four interveners. In December 2013, Coalspur announced that it came to an agreement with the Ermineskin Cree Nation and the Whitefish Lake First Nation, which were registered as interveners in the review. They subsequently announced an agreement with the third intervener, Tourmaline Oil Corp. At the time of publication there was one remaining intervener for a January 2014 hearing in Hinton. The AER is required to deliver decisions no later than 90 days after each hearing, therefore as of the publication date a final decision had not been delivered.

In March 2013, Coalspur announced that they have signed a final agreement with CN to transport coal to tidewater at the Ridley Terminals in Prince Rupert, BC. It is a seven year contract, from January 1, 2013 to December 31, 2019, for up to 12 million tonnes per year. The agreement also includes the construction of 6.5 km of rail to tie CN's rail line into Vista's proposed loading facilities. With the transportation agreement signed, Vista released an estimated total FOB operating cost of $59.55 per tonne over the first ten years of the mine.

The Vista project is a proposed bituminous coal mine that would supply thermal coal to Asian markets. Coalspur reports a 1.7 billion tonne Measured and Indicated coal resource that will be mined over a 30 year mine life.

Obed Mountain

On October 31, 2013, the **Obed Mountain** mine reported a breach in a containment pond that released approximately 670,000 cubic metres of process water into the nearby Apetowun and Plante creeks. While there was an increase of contaminants in the water reported by Alberta Environment and Sustainable Resources Development (ESRD), Alberta Health, on November 17, 2013 said tests indicated there was no immediate risk to human health. A notification was also issued to towns downstream to avoid drawing water while the plume was passing.

ESRD issued an Environmental Protection Order on November 19, 2013 to the mine operator, **Coal Valley Resources Inc**, and the parent company, **Sherritt International Corporation**. The order requires the company to file several plans with ESRD:

- Solids recovery plan
- Short- and long-term impact assessment plan
- Wildlife mitigation plan
- Waste management plan
- Mine wastewater management plan
- Detailed and comprehensive remediation plans

The Obed Mountain mine, located approximately 30 kilometres northeast of Hinton, is currently inactive. The last continuous production was in November 2012; a small amount of stockpiled coal was processed in August 2013. The mine produced bituminous coal that was exported overseas as high quality thermal coal.

Sherritt has stated that they will remain involved in the clean-up process throughout and after the sale of their coal assets.

Sheerness

Prairie Mines and Royalty (*www.sherritt.com*) filed an application with the Alberta Energy Regulator (AER), and Environment and Sustainable Resource Development in October 2013 to expand the **Sheerness mine**. Their plan is to expand the current mine permit area so production can be moved into coal reserves adjacent to current production.

The Sheerness mine is located approximately 200 km northeast of Calgary, near the town of Hanna. It produces subbituminous coal, which is used as a feedstock for the Sheerness generating station. The Sheerness station is co-owned by TransAlta and ATCO Power; ATCO Power operates the units.

In Situ Coal Gasification (ISCG)

There was no significant work done in 2013 with respect to developing in situ coal gasification. The most advanced project in the province, **Swan Hills Synfuels'** pilot project, has been on hold since late in 2011.

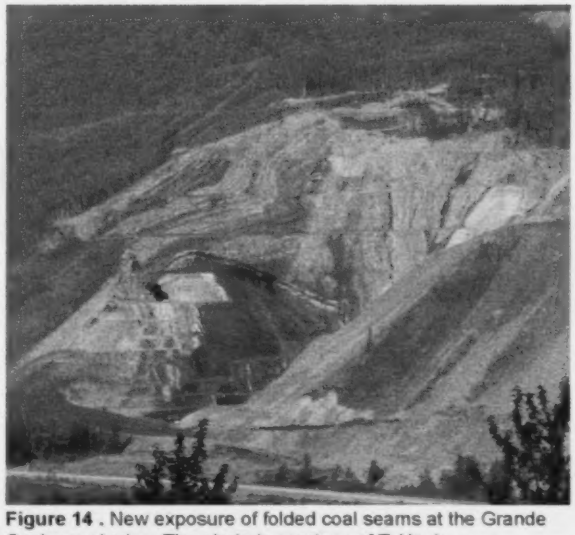

Figure 14 . New exposure of folded coal seams at the Grande Cache coal mine. The photo is courtesy of T. Hauk.

CMD Updates

Activities

Roundup and PDAC. Representatives from the Coal and Mineral Development (CMD) branch of Alberta Energy hosted booths at the Mineral Exploration Roundup in Vancouver and the Prospectors and Developers' Association of Canada convention in Toronto, in 2013. These conferences provide Alberta Energy an opportunity to disseminate information about Alberta, our resources, mineral rights, and other related topics. They also provide an opportunity for those interested in Alberta to make a direct connection. Staff will be attending both conferences again in 2014.

China Mining Conference and Investment Forums. Alberta Energy engaged for the first time as a full participant with a Canadian delegation to the annual China Mining Conference and Exhibition *(www.china-mining.org/en/index.aspx)* in Tianjin, China, and Canada Mineral Investment forums in Beijing and Shanghai, China, and Tokyo, Japan.

The trip was successful solidifying new connections and building relationships in Asia. Alberta also helped arrange mineral investment forums where companies working in Alberta met investors based in China and Japan. Support for the trip was provided by the Alberta offices in Beijing and Tokyo.

Other jurisdictions that were part of the Canadian delegation were British Columbia, Yukon, Saskatchewan, Quebec, Newfoundland and Labrador, and the federal government.

Mineral Assessment Reports

All assessment reports submitted to the department are subject to a confidentiality period of one year. The most recent reports will not be available on the website until after this period.

New this year, non-confidential mineral assessment reports housed by Alberta Energy are available on the Alberta Energy website: *www.energy.alberta.ca/minerals/3441.asp*. Reports dating back to 1949 have been scanned and are available in PDF format.

Mineral assessment reports are required by Alberta Energy for a permittee to maintain a Metallic and Industrial Minerals Permit. Every two years, a permittee must supply a report that documents the exploration work they did during the previous two-year period and that they expended the required amount of money doing so. Assessment reports are the record of the exploration work that is done by permit holders.

Interactive maps

There are online interactive maps available on the Alberta Energy website to show up-to-date tenure information for ammonite shell, coal, and metallic and industrial minerals. The data is updated nightly. The maps are a very important tool for those interested in applying for mineral rights.

New for 2013, the interactive maps were upgraded to the Geoview platform. This has improved their functionality and performance and includes several new features:

- Enhanced search and navigation functions
- New annotation tool
- Integration with Google maps
- New feature identification tools

Data from the ammonite shell, coal, and metallic and industrial minerals maps are still available for download, as they were before. The maps are located in the same place on the Alberta Energy website as the old versions (*www.energy.alberta.ca/OurBusiness/1072.asp*). There is an easy to use tutorial available, accessed by selecting the help button when in the map.

Legislation

Alberta Energy Regulator

On December 10, 2012, the government passed the *Responsible Energy Development Act*; it came into force on June 17, 2013. The act established the Alberta Energy Regulator (AER), which is provided the mandate to regulate all aspects of oil, gas, and coal development in Alberta. It replaces the Energy and Resources Conservation Board, which no longer exists, as well as taking on the energy specific regulatory responsibilities from Alberta Environment and Sustainable Resource Development (ESRD), including the *Public Lands Act*, the *Environmental Protection and*

Enhancement Act, and the *Water Act*. The AER is 100% funded by industry and is an arms-length agency that reports to the Minister of Energy.

Coal Policy

The current Coal Development Policy for Alberta was published in 1976. Alberta Energy is currently evaluating what opportunities may exist to update the 1976 Coal Policy so that, going forward, policy for coal in Alberta takes into account current and anticipated coal sector dynamics.

New publications

Alberta Geological Survey

The Alberta Geological Survey (AGS) released new bedrock geology maps for Alberta and the Alberta Rocky Mountains. Maps and all other publications are available for free from their website: *www.ags.gov.ab.ca*.

Geology of the Alberta Rocky Mountains and Foothills. Pana, D.I. and Elgr, R., AER/AGS MAP 563, 2013.

Bedrock Geology of Alberta. Prior, G.J., Hathaway, B., Glombick, P.M., Pana, D.I., Banks, C.J., Hay, D.C., Schneider, C.L., Grobe, M., Elgr, R., and Weiss, J.A., AER/AGS MAP 600, 2013.

Notes to Accompany MAP 600. Prior, G.J., AER/AGS Open File Report 2013-02, 2013.

Land-use planning

The *Alberta Land Stewardship Act* (ALSA) was passed June 4, 2009 and is the legislative mechanism to implement and support the development of regional plans under the Land-use Framework (LUF). To clarify the intent of the legislation and reinforce the Government of Alberta's commitment to respecting the property rights of Albertans, a number of amendments were introduced in the ALSA on May 10, 2011.

Land-use Framework

A key strategy of the Land-use Framework (LUF) is the development of seven regional land use plans (see Figure 15). Along with environmental monitoring and regulatory enhancement, regional planning is a cornerstone of the resource system that the Government of Alberta is building. This more integrated and coordinated resource system will deliver the best economic, environmental and social benefits for Albertans today, and improve competitiveness and certainty for industry for years to come.

Lower Athabasca Regional Plan

The Lower Athabasca Regional Plan (LARP), the first regional plan developed under the LUF, was publicly released in August 22, 2012 and the regulatory components of the plan took effect on September 1, 2012. The LARP is a forward-looking, 50-year blueprint that provides the strategic direction needed to enhance environmental management in the Lower Athabasca Region which hosts the Athabasca Oil Sands Area, a major economic driver for the region and the province.

The LARP ensures future opportunities for oil sands, petroleum and natural gas, metallic and industrial mineral, and electricity development. The establishment of six new conservation areas by the LARP brings the total conserved area to two million hectares (22% of the region). The plan also requires the development of biodiversity, groundwater and surface water quality frameworks. Nine new recreation areas established by LARP help address social needs, giving Albertans access to various recreational sites to enjoy year round.

Implementation of LARP is underway, and comprises a number of key elements. These include the establishment of the Urban Development Service Region around Fort McMurray to enhance the City of Fort McMurray's ability to respond to the population growth impacts of development, the cancellation of Oil Sands and Metallic and Industrial Mineral agreements in conservation areas, and the development of air,

Land-use planning questions?
For more information regarding the LARP, SSRP, or other land-use plans, contact:

Land-use Framework Regional Planning
780-427-7707

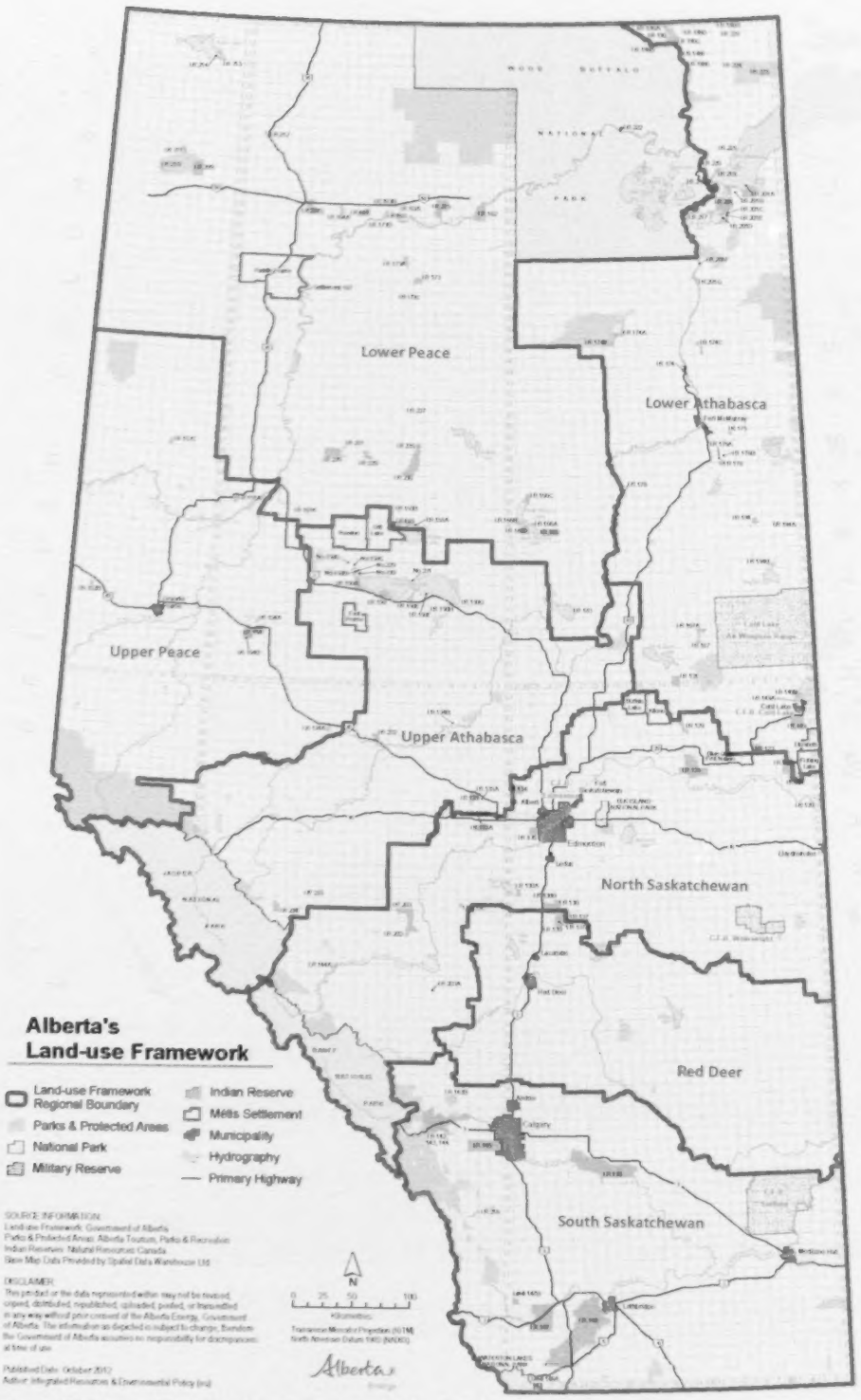

Figure 15. A map of Alberta, showing the boundaries of the regional planning areas associated with Alberta's Land-use Framework.

water and biodiversity management frameworks for the region.

South Saskatchewan Regional Plan

The draft South Saskatchewan Regional Plan (SSRP) was released October 10, 2013. Direction in the draft SSRP supports Alberta's Integrated Resource Management System (IRMS) by establishing clear regional outcomes, providing clear direction to land use decision-makers, and the use of monitoring to support achievement of the outcomes.

The draft SSRP seeks to provide certainty for industry by ensuring that well-defined rules for access to, and responsible development of, natural resources are in place. The draft SSRP proposes setting aside 125,000 hectares in ten new or expanded Conservation Areas to help sustain biodiversity and maintain healthy ecosystems. To help meet growing demand for recreational opportunities, 21 new or expanded parks or recreation areas are also proposed in the draft SSRP.

Formal public consultation sessions on the draft SSRP were held between November 5 and November 28, 2013. The input received from these consultations and online workbooks will be considered in the final drafting of the SSRP. It is currently anticipated that the final plan will be released on or around April 1, 2014.

Other regional plans

Pre-planning work for the remaining 5 plans is underway. A Regional Advisory Council is expected to be struck for the North Saskatchewan Regional Plan in Spring 2014.

Energy and Mines Ministers' Conference

The 2013 Energy and Mines Ministers' Conference (EMMC) was held August 25 – 27, 2013 in Yellowknife, NT. The meeting was co-hosted by the Canadian Minister of Natural Resources, Joe Oliver, and the Northwest Territories Minister of Industry, Tourism, Investment, and Transportation, David Ramsay.

Alberta Energy staff are actively involved in several EMMC sub-committees, including the Green Mining Initiative, and the Mining Sector Performance Report, as part of the Mines Intergovernmental Working Group.

Green Mining Initiative [3] – Ministers endorsed and approved the Green Mining Initiative (GMI) Progress Report: *Addressing Regulatory Barriers to the Adoption of Green Mining Technologies in Canada*. The GMI has three major tasks:

- Enhance engagement and communications with industry and regulators
- Assess the feasibility of an environmental technology verification program
- Assess the use of outcome-based regulations as a means to foster mining innovation

Mining Sector Performance Report [4] – Ministers released the 2013 edition of the *Mining Sector Performance Report* (MSPR). The MSPR provides an analysis of economic, environmental, and social performance of Canada's mining sector, from 1998 to 2012. Development of the report is directed by an EMMC sub-committee with representatives from nine provinces and territories, and an external advisory committee with representation from industry, NGOs, academia, and Aboriginal groups.

The first edition of the MSPR was released at EMMC in 2010 (for the period 1998-2008). The working group is tasked by ministers to provide an updated version every three years.

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[3] The Natural Resources Canada website has more information on the GMI: www.nrcan.gc.ca/minerals-metals/technology/4473

[4] www.nrcan.gc.ca/minerals-metals/sites/www.nrcan.gc.ca.minerals-metals/files/files/pdf/MSP-report-eng.pdf.

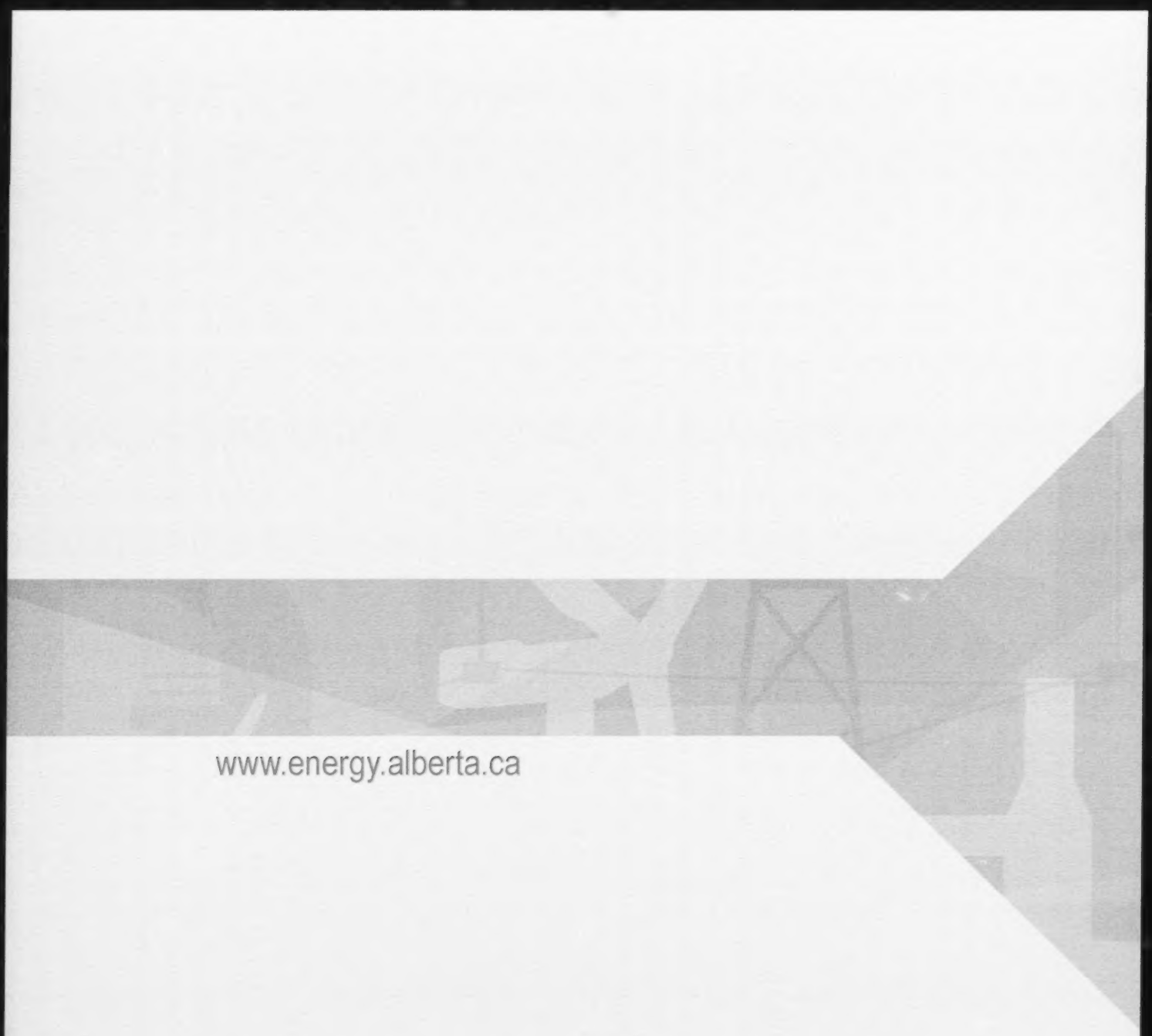
About Alberta's regulatory system

The Crown owns 81% of the mineral rights in Alberta. The other 19% are *Freehold* mineral rights and are owned by individuals, companies or the federal government on behalf of First Nations. The Coal and Mineral Development Branch is responsible for the administration of the Crown's mineral rights for metallic and industrial minerals and coal.

The mineral rights for coal, and metallic and industrial minerals are managed using a variety of agreements, depending on the specific substance and/or activity a client wishes to pursue (see Table 3). Each agreement type is defined and governed through the Alberta's *Mines and Minerals Act*, the Metallic and Industrial Minerals Tenure Regulation, and the Ammonite Shell Regulation. Fees and rentals are set out in the Mines and Minerals Administration Regulation

Agreement	Rights granted	Term	Application fee	Annual rental	Work requirements
Metallic and Industrial Minerals Permit	The exclusive right to explore for MIM in the subsurface and remove samples for exploration purposes.	14 years, divided into 7 2-year work terms; not-renewable	$625	N/A	Term 1 $5/ha Term 2-3 $10/ha Term 4-7 $15/ha
Coal Lease	The exclusive right to win, work, and recover coal.	15 years; renewable	$625	$3.50/ha	N/A
Metallic and Industrial Minerals Lease	The exclusive right to win, work, and recover metallic and industrial minerals.	15 years; renewable	$625	$3.50/ha	N/A
Metallic and Industrial Minerals Licence	The non-exlusive right to win, work, and recover metallic and industrial minerals through placer mining (i.e. a sluice box).	5 year; not-renewable	$50	N/A	N/A
Secondary Mineral Lease	The right to win, work, and recover metallic and industrial minerals through a secondary recovery operation.	5 years; renewable	$625	$3.50/ha	N/A
Special Mineral Lease*	The exclusive right to create caverns and store material in underground salt formations.	15 years; renewable	$625	$12.50/ ha	N/A
Ammonite Shell Agreement	The exclusive right to recover ammonite shell. Must be held in conjunction with an exemption from the *Historical Resources Act*.	15 year, 5 year renewal	$625	$3.50/ha	N/A

Table 3. A table outlining the various coal, and metallic and industrial minerals agreements, along with the detail of each type of agreement. *Special Mineral Leases are one-off agreements between a lessee and the Crown; the details listed in this table are not exclusive, they are the most common.



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